US Army Corps of Engineers ®

The Corps Environment

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Hurricane response brings environmental challenges

As the response and recovery efforts continue in the wake of Hurricane Katrina, federal, state, and local agencies also must grapple with the environmental impacts to Louisiana, Mississippi and Alabama.

Two of the largest tasks with environmental implications are the un-watering of New Orleans and debris cleanup, missions that have been assigned to U.S. Army Corps of Engineers in support of the Federal Emergency Management Agency.

The Corps has undertaken a massive challenge, to drain a city filled with water much like a soup bowl into Lake Pontchartrain. Although the floodwater is contaminated, there is no other option than to pump it into the lake.

"The first priority is the health and safety of residents of New Orleans and all responders, and we are working hand in glove with the U.S. EPA and the Louisiana Department of Environmental Quality to ensure human health and safety as the water is being drained," said Chief of Engineers Lt. Gen. Carl A. Strock

The EPA is closely monitoring the water that is being discharged before it gets to the pumps. Among the measures taken are placing floating, absorbent booms, across the intakes of the pumps and across the discharges of the pumps to try to catch much of the pollutants as the water is discharged, Strock said.

The 55.9 million cubic yards of debris (the amount that the Corps is addressing, and an amount that is continuing to grow) caused by the hurricane must be moved, disposed of and reduced. It is an amount equivalent to five Hurricane Andrews all at once. The Corps is working with each Parish and County on the massive effort, and disposal efforts are closely coordinated with local, state and Federal agencies.

In addition to the usual tree and structural debris, the city also has contaminated muck or solid residuals that must be handled in different ways. The EPA and Coast Guard are working on targeting large scale hazardous materials, while the Corps is working on clearing debris on the roads and selectively removing hazardous materials as they are discovered. Hazardous materials that inadvertently end up at the Corps' reduction sites will be removed and placed in separate containment areas.

Photo by Shannon Bauer

Blake Smith and Jerry Knapp (left and center), both of Vicksburg District's debris removal quality assurance team, talk to a contractor in Bay St. Louis, Miss.

Flood debris from inside homes, or soft goods such as carpet, couches, and other furniture will be land filled. Household hazardous wastes, such as household pesticides, paints, oils, etc., will be segregated and removed/disposed of by certified EPA contractors.

Strock emphasized that each category of debris will be handled in a responsible way, and "recycling is going to be a big part of the effort," which will help reduce stress on landfills space and on material supply networks. Examples of recycling include:

- The Highway 90 Bridge in Gulfport, Miss., where bridge components will be used to armor shoreline or to create artificial reefs in the Gulf for fish propagation.
- Salvaging and reusing building materials such as metal and masonry materials from buildings that are severely damaged and that are candidates for deconstruction.
- Metals such as white goods, washers, dryers and refrigerators, will be collected drained of Freon and oils and recycled. Vehicles and boats will be staged and processed to include owner identification, insurance considerations, removal of fuels and oils and final salvage.
- Tires picked up loose will be segregated and processed through appropriate vendors for recycling.
- Reducing and recycling clean woody debris, such as trees and vegetation by grinding and burning. The chips can be used for a fuel source or as a source for local paper mills. However, the grinding operations in Louisiana are limited by the Formosan Termite infestation where the wood cannot be moved outside of an already infested area.

Leading recycling contractors will be asked provide recycling plans that will dictate processes, equipment and timelines and will be coordinated with local governments, home owners and USACE.

Editor's note: Information for this article was current as of Sept. 22. It did not address the environmental impacts of Hurricane Rita. For more information, contact Headquarters, USACE Public Affairs, at 202-761-0011, or visit www.usace.army.mil.

US Army Corps of Engineers ®

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Lt. Gen. Carl A. Strock
Chief of Engineers
Publisher
Carol Sanders
Corps Public Affairs Officer
Stacey Hirata
Executive Editor
Candice Walters
Managing Editor
Joan Burns
Acting Editor

Submissions

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New manual guides laboratory analyses

By THOMAS GEORGIAN, Ph.D. and KEVIN COATS
Hazardous, Toxic and Radioactive Waste Center of Expertise

The U.S. Army Corps of Engineers is now using the Department of Defense Quality Systems Manual for all Hazardous, Toxic and Radioactive Waste environmental laboratory analyses.

The manual is a baseline quality standard that was developed to help ensure that environmental laboratory data for defense projects will be of the type and quality necessary to support decision making.

In particular, the manual provides quality control criteria for a number of individual test methods commonly performed for defense projects, data reporting requirements, and specifications for environmental laboratory evaluations.

The manual is based on the National Environmental Laboratory Accreditation Conference, Chapter 5, Quality Systems standard, and "provides implementation clarification and expectations for DoD environmental programs."

Laboratory accreditation under the National Laboratory Accreditation Program is not required for compliance with the USACE policy, implemented on Sept. 30, 2004, but since the program's quality requirements are a major component of the DoD quality systems manual, the accreditation is recommended. A list of accredited laboratories is available at http://www.epa.gov/nelac/accreditlabs.html.

The Quality Systems Manual replaces contractual requirements for USACE Laboratory Validation, which was primarily based upon compliance with ISO Guide 25, SW-846 Methods, and EM 200-1-3, Appendix I ("Shell for Analytical Chemical Requirements").

The USACE Hazardous, Toxic and Radioactive Waste Center of Expertise (HTRW CX) Chemical Data Quality Management Branch is no longer performing on-site laboratory inspections under this program to provide a list of validated laboratories and test methods.

The branch is transitioning to a technical assistance role supporting districts in all aspects of compliance with the policy. The primary responsibility for determining the compliance of environmental testing laboratories with this policy rests with district Program Managers and members of the Project Development Teams (PDTs), which include district chemists.

At a minimum, districts should request that environmental testing laboratories annually submit self-declarations for compliance with the Quality Systems Manual. Districts should also develop a comprehensive, formal business process, such as a Program Management Plan, to ensure compliance with the new policy, providing access to adequate laboratory capacity meeting the manual's requirements.

The HTRW CX Chemical Data Quality Management Branch can perform on-site laboratory evaluations and desk audits to assist district laboratory evaluations when technical assistance is requested, based on availability of resources. Some central funds continue to be available for HTRW CX technical assistance for Formerly Used Defense Sites and the Army Installation Restoration Program, while for other programs, project-specific funding will be necessary.

The mechanism that will be used to share laboratory evaluations performed under the new policy is being developed. The HTRW CX plans to post the laboratory evaluations it performs under the new policy on its Web page: http://www.environmental.usace.army.mil.

A copy of the Quality Systems Manual policy memorandum, frequently asked questions and a list of laboratories approved under the former USACE Environmental Laboratory Validation Program is available at http://www.environmental.usace.army.mil/info/technical/chem/chemval/chemval.html. The most recent version of the manual is available at www.denix.osd.mil.

Questions and request for technical support should be directed to the HTRW CX Chemical Data Quality Managaement Branch by contacting Kevin Coats, Chief, at (402) 697-2563, or by email at Kevin.H.Coats@usace.army.mil; Jan Dunker at (402) 697-2566, or email, Jan.W.Dunker@usace.army.mil; or Thomas Georgian at (402) 697-2567, by email at Thomas.Georgian@usace.army.mil.

Searchable NEPA repository online

Records of Army experience with the National Environmental Policy Act (NEPA) are now available online.

NEPA Online holds examples of environmental assessments, findings of no significant impact, environmental impact statements, records of decision and other NEPA documents prepared by the Army since the 2002 adoption of section 651 of Title 32 of the Code of Federal Regulations, "Environmental Effects of Army Actions."

The repository provides source and environmental resource information to help Army environmental professionals understand and comply with NEPA.

User should contact the U.S. Army Environmental Center at 1-800-872-3845 to get a password for the web site, or for other information.

Researchers seek to unveil mysterious killer of birds

By JOHN HAINS and DAVID SOBALLE
Engineer Research and Develoment Center

U.S. Army Photo

The eagle above was killed by AVM at J. Strom Thurmond Lake on the Savannah River between South Carolina and Georgia.

Reservoirs built and operated by the U.S. Army Corps of Engineers provide important habitat for a wide variety of wildlife, but now some of these reservoirs in the Southeastern United States have become the site of a mysterious disease that has killed many bald eagles and other birds.

Since 1994, when 29 American bald eagles and hundreds of coots died at the USACE's DeGray Lake in Arkansas, the cause of this emerging disease has been under intense investigation.

The disease, called Avian Vacuolar Myelinopathy (AVM), is not just a problem for eagles and coots. The symptoms include debilitated movement, inability to walk or fly, and lesions in the white matter of the brain, especially in the optic lobes. Although these lesions are now the definitive indicator of the disease, they can only be detected by a post mortem examination.

Coots eat aquatic plants, and so the plants and water in DeGray Lake were obvious suspects. Several species of plants were available for the coots at DeGray, but the dominant plant was Brazilian Elodea (*Egeria densa*), an introduced, nuisance species.

Four years after the DeGray incident, an outbreak of AVM killed another large batch of bald eagles in the southeast. At another USACE reservoir more than 650 miles from DeGray Lake, eagles were dying at J. Strom Thurmond Lake on the Savannah River between South Carolina and Georgia.

As at DeGray, the role of the food-chain at JST was apparent, and an aquatic nuisance plant, (Hydrilla instead of Brazilian Elodea) had recently invaded the reservoir and formed large dense beds of vegetation that were feeding areas for coots.

Like the DeGray incident, coots had arrived at JST in large numbers on their winter migration before the eagles were killed. The eagles had been feeding on dead coots. However, the eagles that died at DeGray were themselves migratory, whereas the eagles at JST were permanent residents that wildlife managers had hoped would contribute to the recovery of their endangered species in the Southeast. Thus it seemed unlikely that eagles had transported the disease to this new location.

Coincidentally, JST also had been intensively studied by U.S. Army Engineer Research and Development Center (ERDC) scientists for many years before the AVM outbreak. An ERDC research group was based at Trotters Shoals Limnological Research Facility (TSLRF), located just upstream of JST at Richard B. Russell Lake.

By the time AVM had killed the eagles at JST in the winter of 1998-99, numerous biologists had performed field studies and assembled anecdotal information to try and identify how AVM kills birds and, more importantly, what causes the disease. By then, they had noticed that AVM was not confined to coots and eagles, but also affected Canada geese and other waterfowl that eat plants.

A collaboration involving ERDC's Environmental Laboratory, Dr. William Bowerman, a Clemson University professor and wildlife toxicologist who specializes in eagles, and Ms. Anna Birrenkott (a student at Clemson) resulted in a laboratory study that proved the link between aquatic plants and AVM in birds.

The collaboration soon expanded to include Dr. Susan Wilde at the University of South Carolina (who had also done studies at TSLRF) and others, notably Dr. John Fischer, a member of the Southeastern Cooperative Wildlife Disease Study at the University of Georgia.

Dr. Fischer expanded on the Birrenkott experiment to show a link between herbivorous (plant-eating) waterfowl and captive red tailed hawks. The "game was afoot" but the cause of AVM remained elusive.

Field studies by Dr. Wilde, meanwhile, found a microscopic organism that grows on the stems and leaves of aquatic plants. The microbe was a blue-green algae (cyanobacteria) that could produce a toxin, and so a new direction for the AVM investigation emerged. The investigation held great promise for detecting the actual cause of the disease, and perhaps ways to prevent or control it.

Late in the 2005 fiscal year, Congress appropriated additional funds for USACE's Aquatic Nuisance Species Research Program, and part of these funds were made available for an intensive investigation of AVM.

Field exposure studies are being conducted to identify other bird species that may be susceptible to AVM and studies are in progress to find a quick diagnostic tool for the disease.

Corps personnel who see birds with symptoms of AVM should contact their local wildlife agencies and also the ERDC Environmental Laboratory for the proper method to preserve the bird for diagnosis. For a while, at least, the mystery of AVM remains unsolved.

For more information call the ERDC Public Affairs Office at (601) 634-2505.

Pacific Sound Resources site gets clean cap

By PATRICIA GRAESSER
Seattle District

Capping material was placed using the 7-pocket bottom-dump barge shown above. Specialized software allowed monitoring of the placement rate and location on a real-time basis to allow precise placement.

Looking from Alki Point across Elliott Bay to Seattle's skyline, the waves hide a significant accomplishment below the surface. Where once lay 58 acres of bay contaminated with creosote, pentachlorophenol, arsenic and zinc; now a clean "cap" provides a natural marine environment for bottom-dwelling and swimming creatures.

As part of a Superfund project for the U.S. Environmental Protection Agency, the Seattle District has completed a cost- and time-saving project that capped contaminants with clean material and expanded the beach area at the Pacific Sound Resources site in West Seattle.

From 1909 until 1994, Pacific Sound Resources (PSR) preserved wood using chemicals that ultimately made their way into the soil, groundwater and marine sediment. The site was listed on the National Priority List in 1994. For the cleanup, the EPA defined the site in two separate "units" and brought the Corps in to manage the marine sediment unit cleanup.

"They say of faster, better and cheaper, you can only have two out of three," said Seattle District project manager Miriam Gilmer. "We had all three with this project."

The marine sediment unit included five areas. Travis Shaw was project engineer for areas 1-4. Working in Environmental Engineering and Technical Section, Shaw doesn't ordinarily oversee construction projects.

The team pulled technical staff in for design review and retained them through construction. Team members agreed that allowing technical staff to implement the design was a great benefit on this project.

"By working smart with a good contractor, we were able to cut five years and about $2 million from this project," Shaw said.

The original design specified using an amendment of total organic carbon as one layer of the multi-layer cap. While this would meet the contract requirements, it would be less effective and more expensive than other options. The Corps team and designer negotiated and re-evaluated the design standards and removed the amendment from the specifications. The change brought dollar savings and meant fewer supply and quality control issues.

Shaw said the designer, URS, was responsive and open to working on changes with the District's team. The construction contractor, ACC-Hurlen, was an integral part of the team. "Everyone worked together to keep the objective in mind," Shaw said.

The cap was like a layer cake, with different types of materials layered to serve specific functions. The area included 2,000 lineal feet of shoreline, intertidal area, steep slopes with stability issues and a nearby active marine terminal. Shaw said the design would have been difficult to execute on dry land, let alone under water.

The contactor used state-of-the-art technology to ensure the material was placed precisely and that it stayed in place. Through global positioning systems, including a transponder on the clamshell bucket, the team could track placement progress daily on the Internet using geographical information systems.

Current technology allows dredged material to be placed much more precisely than in the past, according to John Wakeman, technical lead. In areas 1-3, the material was placed bucket by bucket precisely where capping managers wanted it to go.

Material in area 4 was placed using a seven-pocket bottom-dump barge that ACC-Hurlen bought specifically for this project. Area 4

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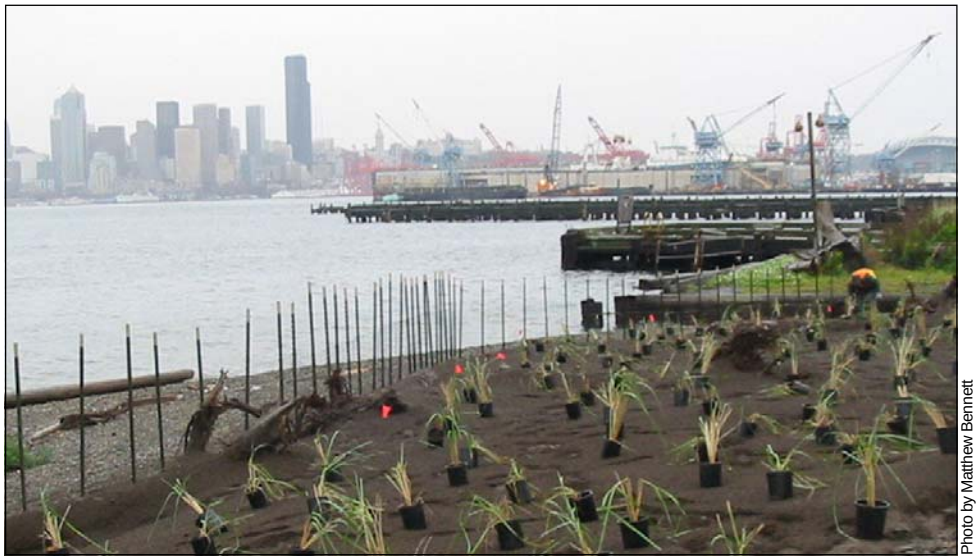

Photo by Matthew Bennett

Crews plant native beach grass at the east end of the Pacific Sound Resource shore site.

Conference addresses range sustainment issues

By KIM GILLESPIE
Engineering and Support Center, Huntsville

Photo by Kim Gillelspie

Debra Brey, right, executive officer and customer outreach liaison at the Omaha District, answers questions from (left to right) John Floden, CDM Federal Programs Corp., and Dr. Femi Ayorinde, UXO Center of Excellence, about the Corps' Military Munitions services at the 2nd DoD Sustainable Ranges Initiative Conference and Exhibition in San Antonio, Texas.

The competing demands of development, environmental stewardship, commerce and military training needs were debated at the 2nd Department of Defense Sustainable Ranges Initiative Conference and Exhibition Aug. 22-25 in San Antonio, Texas. The event offered an estimated 750 participants from public and private industry the opportunity to hear and engage experts from the various fields involved with range sustainment.

"It's a great networking opportunity, a training opportunity, a chance to interface with customers and contractors and meet with counterparts," said Debra Brey, executive officer and customer outreach liaison with the Corps' Omaha District. "It's also an opportunity for us to work toward the Chief's vision."

Using the theme, "One Team: Relevant, Ready, Reliable, Responsive," Corps personnel offered information in areas ranging from installation support, infrastructure, and real estate, to range maintenance and environmental services.

The topics aligned perfectly with the conference emphasis on infrastructure, operations, maintenance, encroachment, environmental responsibility, outreach and new technologies.

"There was good USACE participation from the Military Munitions Response Program subcommunity of practice and range construction which showed USACE capabilities and commitment to the services," said Larry Barb, an environmental engineer with the Headquarters Environmental Community of Practice.

Brig. Gen. Robert J. Reese, White Sands Missile Range commander, was one of the primary speakers, and discussed the importance of balancing the mission, environment, and community. "Our vision of range sustainment must be understood from headquarters to the platoon leader," he said.

"The conference message was clear from DoD and all the services that we as a nation have to work together to sustain our operational ranges. This is a growing mission area for the U.S. Army Corps of Engineers," said Chris Evans, Baltimore District project manager.

Cooperation among agencies and stakeholders was stressed at the conference. Corps participants indicated they felt positive about how stakeholder relationships are being developed, and were excited about working toward closer Corps ties.

"Another good sign was the Military Munitions Design Center meeting with Pat Rivers, chief of the Corps' Environmental Community of Practice, to discuss topics of interest to the Design Centers and further the collaborations initiative," said Barb.

Collaborative Corps exhibit promotes military munitions services

The U.S. Army Corps of Engineers united its divisions, districts and centers involved in its Military Munitions Response Services in one exhibit at the 2nd DoD Sustainable Ranges Initiative.

The exhibit's main graphic displayed names, locations and designated support specialties (such as Centers of Expertise, Design Centers, or remedial action districts).

"This was a very positive show of collaboration among the Design Centers," noted Larry Barb, environmental engineer at Corps headquarters. "It sent the message that USACE has corporate capabilities and we have them tied together to bring the right expertise to the problem."

Smaller visuals in the exhibit highlighted other unique services the Corps can provide to support its Military Munitions program. The banner visuals emphasized technologies and equipment available through the Corps that can improve safety, quality and cost of maintenance for military installation ranges.

The operational ranges and associated munitions constituents visual described how the Army's Environmental Center will use the Corps' assessment to determine if constituents have been released or if a substantial threat for release is present. The contracting visual described the ways Corps contracts can be tailored to the customer's particular needs.

Two other visuals focused on services specific to installations. One, the Army's Mandatory Center of Expertise for the Range and Training Land Program, highlighted the Corps' capabilities for planning, design, and construction oversight; line-of-sight capability; DD Form 1391 preparation and standard engineering designs and guide specifications.

The other visual noted other installation-related services available from the Corps, such as master planning and GIS/mapping geometrics; real estate (acquisition, rights of entry, easements) and compliance with the National Environmental Policy Act of 1969.

"One door to the Corps" was a clear implication at this conference as all of the areas of expertise were represented within one exhibit area. This was a good experience of internal partnering." said Carol Youkey, Huntsville Center's chief of the Military Munitions Center of Expertise.

Honolulu District employee wins Federal Executive Board award

HONOLULU – U.S. Army Corps of Engineers' project manager Cindy Barger received the Federal Employee of the Year Award in the Professional, Administrative and Technical category from the Hawaii Federal Executive Board June 8 during the 49th annual event at the Sheraton Waikiki Hotel.

Barger was nominated by the Honolulu Engineer District for her outstanding work in the successful completion of the Styker Brigade Combat Team Environmental Impact Statement.

According to Honolulu District Commander, Lt. Col. David E. Anderson, "everyone in the Honolulu District is well aware of Cindy Barger's accomplishments and her role in leading the team that executed the successful SBCT EIS. We are all proud of her. I am thrilled that the rest of the federal family in Hawaii is recognizing her accomplishments, too."

U.S. Army Photo

Cindy Barger receives Federal Employee of the Year Award June 8 from Federal Executive Board member Michael Herb.

The 2nd Brigade of the 25th ID (L) is in the process of transforming into an SBCT. Transformation is important because it will provide the Army and the nation with a more responsive, deployable, agile, versatile, lethal, survivable, and sustainable force well suited to meet the defense challenges of the 21st century.

The theme for the Federal Executive Board Awards this year was "Saluting the Best in Hawaii and the Pacific!"

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Continued from Page 4

placement was carefully monitored because the steep slopes made land slides a concern. Hurlen developed software that allowed them to monitor the placement rate and location on a real-time basis to allow precise placement in the sensitive area.

In the beginning, the team talked with URS about using dredged material for areas 1-4, but didn't specify its use because of the uncertainty of matching up the construction schedule with the maintenance dredging cycle.

About half way through construction, the District scheduled dredging a portion of the Duwamish River. Dredged material met the project requirements and would also save money.

Rather than taking the clean material to the usual disposal site, Navigation Section had the material placed at the Pacific Sound Resources site. The PSR project paid the cost of transporting the material and of precision placement, but saved the cost of buying and transporting 55,000 cubic yards of upland material. The work on areas 1-4 was completed in November.

"I don't know if the stars all lined up right or Murphy took the day off ... this was a strong team committed to quality," Shaw said.

All the team members were responsive and willing to re-evaluate the project rapidly using available data to make real-time decisions.

The farthest from shore, area 5 now wears one of the deepest sediment caps on the west coast, according to Snohomish dredging manager Patty Miller.

The Corps used 300,000 cubic yards of dredged material from routine maintenance of the Snohomish River, which was co-sponsored by the Port of Everett.

The cost to the EPA was about $242,000—the cost to haul the material the extra distance and place it at the PSR site. Port of Everett saved money because they didn't have to pay open-water disposal fees. TheDepartment of Natural Resources provided the sediments from state-owned lands for the cleanup.

In addition to using Snohomish River material for capping, the Corps used dredged materials from two private dredging projects that coincided with capping timing. The district continued the precedent for using dredged material from Corps navigation dredging for beneficial purposes.

The district also set the precedent for beneficial use of material from permitted dredging projects. The Corps placed a total of about 800,000 cubic yards of material for the entire Pacific Sound Resources site.

As a side benefit, the use of GIS software spatial analysis technology for this project brings the district closer to the Corps' goal of compliance with spatial data standards.

The cap needed to be thick enough to accommodate burrowing animals and had to isolate contaminates. The team was able to achieve the designed 40-inch cap efficiently throughout the 58-acre area as estimated by the designers and verified by the visual references.

Construction completion monitoring provides coring, bathymetric surveys, sampling, and sub-bottom profiling, which distinguishes between materials of different densities to show the exact thickness of the cap.

The entire project ultimately involved about 80 people. It was a complicated design with biological and chemical requirements that entailed tapping into the array of expertise in the district—biologists, chemists, engineers, technicians—and the Puget crew collected samples prior to capping. "Nearly every branch in the district had a role," said Gilmer.

The project required coordination with resource agencies and a compliance with regulations, which was accomplished at a quick pace. The resource agencies even allowed the Corps to work three days into the fish window to meet the overall goal of providing a cleaner Bay quickly rather than stopping and having to demobilize equipment, wait out the fish window and mobilize the contractor again for a few days work.

The Corps completed cleanup of all areas (1-5) by February 2005. A celebration March 2 marked the end to a successful project.

Complete cost of the Corps' portion of the cleanup was $16 million, but about $1 million will be returned to EPA because of cost savings.

With capping complete, the Corps has provided a cleaner shoreline area for recreational use and a cleaner environment for the benthic community and for Puget Sound Chinook salmon, a threatened species.

For more information, contact Seattle District Public Affairs at (206) 764-3760.

Corps fish study nets useful data

By JOANNE CASTAGNA
New York District

In a New York City conference room with large windows overlooking the Port of New York and New Jersey, Mary Fabrizio, Chief of the Behavioral Ecology Branch of the Northeast Fisheries Science Center, recently presented to scientists the results of an extensive fish tagging study she performed for the U.S. Army Corps of Engineers.

As the study's principal investigator, Fabrizio told the scientists, "The findings will be used to update the Environmental Protection Agency's criteria that determine what dredged material from the port is environmentally safe to place in the Historic Area Remediation Site (HARS)."

After undergoing a series of biological and chemical analyses, dredged sediment from the channels within the Port of New York and New Jersey is placed in the Atlantic Ocean at the HARS if found acceptable as remediation material.

The HARS is an approximately 15.7 square nautical mile area – 3.5 nautical miles east of Highlands, New Jersey, and 7.7 nautical miles south of Rockaway, New York.

Remediation material is used to cover or "cap" the dredged sediment placed there previously that did not meet EPA's current placement standards. This cap remediates the site and improves the habitat conditions for aquatic life in the HARS.

"After consultation with the Corps' New York District, the U.S. EPA Region 2 sets the final criterion for what is suitable for placement in the HARS. Several years ago the EPA indicated they wanted to update this criteria by using a risk-based approach," said Monte Greges, Chief of Dredged Material Management Section, U.S. Army Corps of Engineers, New York District.

"One of the parameters that goes into creating this risk-based criteria is the residency time of fish in the HARS because it is assumed that the more time the fish spend at the HARS, the more organisms they will eat that have been impacted by dredged material placed there."

"The New York District ... initiated and funded a fish tag study to better answer the question of how much time the fish actually spent within the HARS boundary," said Greges.

The June 2003 to June 2004 study, managed by the Corps' Engineer Research and Development Center, Waterways Experimental Station in Vicksburg, Miss., included 145 healthy adult fish captured at the HARS. The species captured included 122 black sea bass (*Centropristis striata*) and 23 summer flounder (*Paralichthys dentatus*) or "fluke," both important to recreational and commercial fishing.

The fish were monitored using ultrasonic transmitters surgically implanted in their abdominal cavities. To pick up the signals, 72 receivers were strategically moored throughout the HARS, 800 meters apart.

The receiver electronically decoded and recorded the identification number of the transmitter, the date and the time of the day the signal was detected.

"Deploying and retrieving sensitive acoustic equipment at sea for long periods of time is difficult," Fabrizio said. "Each time we attempted to retrieve the 72 receivers, we usually needed about 10 full days, which we had to schedule around the weather, including Hurricane Isabel in September 2003.

"If I did the study again I would use acoustic receivers with modem capabilities – this allows the scientists on board the vessel to download the information from the receiver's memory without having to retrieve the gear off the bottom of the sea," she said. "However, this equipment was not yet developed when we started our work, and it's very expensive.

Northeast Fisheries Science Center Photo

Scientists disassemble an array that holds the receiver in order to retrieve the data.

These records were accumulated in the memory of the receiver. When the receiver was retrieved and the data downloaded to a computer, scientists had collected 1.4 million records.

Recent preliminary results on the fishes' use of the HARS habitat, seasonal activity and dispersal out of the HARS, showed that both fish species spent most of their time in the summer in the shallow areas on the ocean floor where the HARS is composed of varying levels of dredged sediment.

Black sea bass exhibited greater activity in the HARS during the summer than during the fall. Summer flounder activity patterns were more complex. All fish were captured and released within the HARS boundaries, but each species moved or "dispersed" out of the HARS at different times and rates. A handful returned to the HARS one year later.

"It was also very interesting learning from, and working with the captains of the vessels that assisted us on this study," Fabrizio said.

She said the most important aspect of the field deployments and retrievals of the receivers was the skill of the captain and the capabilities of the vessel.

Griggs said data from this study will benefit both the public and the environment. Scientifically defensible data will be used by the EPA to create the new HARS criteria, a more realistic picture of human and ecological risk will be ascertained and dredged material that poses an unacceptable risk for introduction into the food chain will not be disposed in the ocean.

For more information contact the author at Joanne.castagna@usace.army.mil.

Photo by Hank Heusinkveld

Walker Golder, a biologist for the National Audubon Society of North Carolina observes bird island habitat.

Sea birds find Corps dredge islands perfect home

By HANK HEUSINKVELD
Wilmington District

Since the 1930s the Wilmington District has been creating islands in the Lower Cape Fear River from dredged material. They became a part of the landscape; uninhabited, elliptical uplands slowly became engulfed with vegetation. Around 1975, a University of North Carolina at Wilmington ornithologist approached the District with interesting information. Sea birds were nesting on dredge islands about seven miles south of downtown Wilmington.

District biologist Trudy Wilder remembers the initial encounter well. "Dr. James Parnell contacted us to say, 'Hey, you've got birds using these islands. Is there something we can do to make them more conducive to bird nesting?'"

What began as a novel idea for managing dredged material as habitat has evolved into one of the best and *only* habitat for pelicans, royal terns, laughing gulls and other sea birds in southeastern North Carolina.

Owned by the state and overseen by the North Carolina chapter of the National Audubon Society, South Pelican Island and Ferry Slip Island have become bird magnets during nesting season. The pelicans, for example, like grassy vegetation while terns prefer beach quality sand.

Both islands were built using the "Design By Nature" approach that imitates a natural island's structure and appearance. Walker Golder, a biologist for the National Audubon Society of North Carolina, said with everyone working together, engineers with biologists and dredging contractors, they were able to create a perfect formula to use dredged sand beneficially to create excellent bird habitat.

"The Corps has been fabulous about working with biologists to make sure that we put the sand on the island during the right time of the year, that they put it on in the right configuration and on the right places on the islands."

Golder said one big factor that steered the birds to the islands was that they were being forced off their historic nesting sites on beaches or on natural islands taken over by people.

"These dredge material islands mimicked habitats that were once in great abundance along North Carolina coasts. These islands that are now in the Cape Fear River are filled with thousands of birds," he said.

Golder added that the islands need regular maintenance, optimally every seven years. "We were having to go to the island in late winter and remove vegetation by hand because it was overgrown. Luckily sand became available in that area of the Cape Fear River adjacent to the islands."

Wilmington District biologist Bill Adams has been observing the bird islands since the 1970s. He said the islands are doing now what he had envisioned them doing 20 or more years ago.

"It's a typical management scheme. If you provide the correct habitat, the target species will respond. And that's what we're doing. We knew that there was a deficit of good nesting habitat for these birds so we tried to create it in conjunction with the Audubon Society and the N.C. Wildlife Commission and other agencies in a spot where we have sandy dredged material," he said.

As the population of North Carolina continues to increase, especially in southeastern North Carolina, these islands are becoming even more critical.

"If we can maintain the habitat the islands will become absolutely essential to maintaining the populations of the birds in North Carolina," said Golder. "Right now about 20 percent of the brown pelicans and about 20 percent of the state's royal terns nest on Lower Cape Fear River islands."

Adams said if the bird populations dwindle on the bird islands, this area could lose a part of its identity. "The tourists love it. Who would come to the coast and not expect to see seagulls, terns and other birds flying over? It's just a part of the coastal environment. Eighty-five percent of those birds are coming from our dredge islands. It's an important resource, a visual resource to the local economy and the state."

As the principle representative for the National Audubon Society in North Carolina, Golder has his hands full trying to keep tabs on birds for his organization. The Wilmington native keeps a watchful eye on the islands, hoping that they'll continue to be a refuge for nesting sea birds.

"The birds play an important role in balancing the ecosystem that all species are connected by. And they add a tremendous amount of aesthetic beauty to the coast. And you don't have to go far to see that.

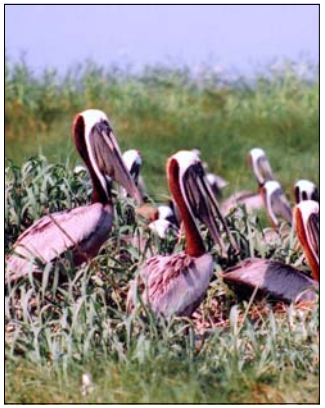
"You can see 'pelican' on hotel and motel signs, 'heron this, heron that', 'skimmer this, skimmer that', etc. People certainly recognize that.

"There are people who could care less, too. But if you took the pelican out of the ecosystem you'd have a less desirable coast because they're a component of the place we live, our place that we visit or take a vacation. They're a part of the coastal experience.

"Just like the fish, the crabs, the water, the beach. It's all related," Golder said.

For more information contact the Wilmington District Public Affairs office at (910) 251-4626.

A royal tern colony nests on South Pelican Island. Other bird species also nest nearby.



Brown pelicans on South Pelican Island prefer grassy areas and thickets.

Photos by Hank Heusinkveld

Laughing gulls take a breather after foraging.

Flocks of sea birds returning from foraging appear to fill the sky.

Historical plunge teams Sacramento District, Navy, Paiute Tribe

Pyramid Lake Paiute Tribal Chairman applauds clean-up effort and positive working relationships with DoD

By CINDY VINCENT
EM-Assist, Inc.

Photo by Cindy Vincent

Navy divers prepare for a dive operation on one of two barges located at Pyramid Lake.

SUTCLIFFE, Nev. — Ordnance used as a part of Naval bombing and strafing activities conducted at Pyramid Lake in the 1940s remained at the bottom of the lake until recently.

In August 2004, this piece of history was recovered and brought to the surface for the first time by Navy Explosive Ordnance Disposal Mobile Unit (EODMU) 11, with support from the U.S. Army Corps of Engineers, the Pyramid Lake Paiute Tribe, Naval Air Station (NAS) Fallon, tribal contractor David Evans and Associates (DEA), and Army Corps' contractor EM-Assist.

"This is the ultimate cooperative effort: funded by the Native American Land Environmental Mitigation Program (NALEMP), managed by the tribe, mentored by the Corps, and executed by the Navy with assistance from DEA and EM-Assist," said Jerry Vincent, Formerly Used Defense Sites Program Manager, U.S. Army Corps of Engineers Sacramento District.

A massive joint effort that initially began in 2002, the ordnance removal project, known as "Operation Sutcliffe Rocket Lift" was made possible through funding provided by the NALEMP. The NALEMP was established by the Department of Defense to specifically address the effects of past military operations on Native American lands and Alaska Native Claims Settlement Act-conveyed properties.

"This project has made it possible for the tribe to undertake a lake mapping project with a wide range of uses for the fisheries, water quality control and economic development," said Anna Keyzers, Pyramid Lake Paiute Tribe Environmental Dept. NALEMP Project Manager. "This information has far reaching capabilities for the tribe."

The initial fieldwork began with the tribe awarding a contract to DEA for the mapping and sediment sampling of Pyramid Lake. In the fall of 2003, the bathymetric and detailed cultural debris investigation was conducted, identifying and mapping more than 200 significant anomalies, possibly ordnance ammunition, at the bottom of the 110,000-acre Pyramid Lake.

DEA initiated a Remotely Operated Vehicle (ROV) exploratory service in the spring of 2004. The vehicle was equipped with scanning sonar, that located high-velocity aircraft rockets, ammunition crates, 55-gallon drums and other debris.

In August 2004, two years of planning and investigation finally paid off when the first phase of ordnance removal was initiated off the Sutcliffe shoreline. EOD divers, DEA, Paiute tribal members, and representatives from the Corps of Engineers and EM-Assist recovered 207 rockets and 500 pounds of small arms ammunition during the 12-day removal effort.

"We didn't expect to find so much out there. Previous ROV searches indicated far less than we recovered. What we did find was extremely degraded from being under water for 60 years," said Senior Chief Hull Technician, Daniel Gross, EODMU 11, Detachment Fallon.

On Aug. 27, 2004, all 207 rockets and 500 pounds of small arms ammunition were taken to an air-to-ground bombing range, sorted into two piles, laced with explosives, and detonated to properly dispose of all of the hazardous shallow-water ordnance recovered from Pyramid Lake.

Immediately after the Phase I removal operations, nearly nine months of planning went into preparing the next phase by developing logarithms for new high altitude decompression dive tables and acquiring the equipment necessary to carry out Phase II. In April 2005, "Operation Sutcliffe Rocket Lift," Phase II, was initiated and marked a historical step in not only the history of Pyramid Lake but also in the history of Naval diving operations.

Two important details separated this operation from all others: equipment and altitude. EOD diving personnel dove for the first time in Naval history at an uncommon altitude of 3,880 feet with unique diving gear, known as a MK 16 Mod 1 closed-circuit breathing apparatus. The apparatus provides and reuses both oxygen and helium while filtering out any carbon dioxide.

"The MK16 Mod 1 gives the diver the advantage of the mobility of a free swimmer and requires minimal support," Hull Technician Senior Chief, Master Diver, Boy Kayona said.

On June 4, all deepwater ordnance recovered from the bottom of Pyramid Lake was properly disposed of once and for all.

"The Pyramid Lake Paiute Tribe applauds the clean-up effort and positive working relationship with the Department of Defense for the removal of ordnance and munitions from historic Defense operations," said Pyramid Lake Paiute Tribal Chairman Norman Harry.

Editor's note: Vincent is a contractor for the U.S. Army Corps of Engineers. For more information about this project, contact the Sacramento District Public Affairs Office at (916) 557-5101.

New dredge digs working on Mississippi River

By PETER VERSTEGEN
St. Paul District

They scour out the nine-foot navigation channel on the Mississippi River. They create islands. And with the sand, they dig off the river's bottom, they build wildlife habitat along the banks of the river in Minnesota, Wisconsin, Iowa and Illinois.

They are "river rats," members of the crew on the U.S. Army Corps of Engineers' newly christened dredge, *Goetz*. The Corps christened the *Goetz* in a ceremony and open house at Levee Park in Winona, Minn., June 24-25. Nearly 3,000 people attended.

The *Goetz* is the Army's newest dredge. It replaces the retiring dredge *Thompson* and will be the only major cutterhead-style dredge in the Corps of Engineers' substantial floating fleet. Its home port is Fountain City, Wis.

"Because of the Corps' significant missions related to water, the U.S. Army owns more vessels than the Navy does," said Jim Maybach, plant engineer for the Corps' St. Paul District.

The *Goetz* is part of a $20.5 million fleet upgrade that will eventually consist of three major new pieces: the dredge *Goetz*, the Towboat *General Warren* and the Quarters Barge *Taggatz*. Arley (Butch) Martin, the first master of the *Goetz*, will direct operations for the flotilla and its crew of 54, which works 12-hour shifts, seven days on-seven days off. Its crew includes a master or captain, a second mate, leverman, tender operators, heavy equipment operators, deckhands and others to maintain open navigation on the river.

The St. Paul District uses the dredge to maintain 850 miles of the nine-foot navigation channel on the Mississippi River and 355 miles on the Illinois River. The navigation channel extends from Minneapolis to Cairo, Ill., just north of St. Louis.

The Upper Mississippi River is part of the nation's federal waterway transportation system and is used to ship 80 million tons of cargo annually.

Congress authorized the navigation channel in 1930. The Corps subsequently constructed 29 locks and dams upstream of St. Louis. Dredging ensures the channel is deep enough for towboats that push up to 15 barges at a time, moving 22,000 tons of bulk commodities, including grain, coal, petroleum, cement, fertilizer and chemicals.

The *Goetz* operates primarily in the St. Paul and Rock Island engineer districts, where dredging requirements average nearly two million cubic yards annually. "Including end-zones, that's 187 football fields, five-feet deep," said Steve Tapp, channel maintenance coordinator.

The dredged material is predominately clean sand, suitable for a variety of beneficial uses. These uses include environmental restoration projects; recreational beaches; landfill for residential, commercial and industrial development; highway maintenance and ice control; construction fill; and aggregate in concrete and asphalt.

At 600 tons, the *Goetz* weighs more than eight Abrams M1A2 tanks. It's 225 feet long — about the length of seven tanks. The 4,000-horsepower diesel engine is more than twice what the Abrams has. The cutterhead and suction pipe on the front scours the river bottom at 1,000 cubic yards per hour and can dig to a maximum depth of 28 feet.

Despite its weight, power and sand-pumping capability, the dredge sits dead in the water. Well, almost. "The towboat *General Warren* will push it between five and six miles per hour," said Maybach. Spuds, something like stilts on back of the dredge, walk the dredge forward with the aid of swing anchors and winches while it's digging.

"The cutterhead rotates about 25 revolutions per minute. We swing the cutterhead across the bottom of the river at a rate of 70 to 80 feet per minute to clear the channel," said Maybach.

The $9.8 million *Goetz* was manufactured in 2005 for the Corps of Engineers by Oilfield-Electric-Marine, a subsidiary of Rowan Electric. The dredge was built in Vicksburg, Miss., and then delivered to the Corps' Fountain City service base on May 15.

Photo by Alan Dooley

The St. Paul District's newest vessel, the dredge, *Goetz*, gets a boost in transit during its maiden northbound voyage on the Mississippi River.

Photo by Jon Lyman

Alice Goetz, widow of the late Bill Goetz, breaks a bottle of champagne on the cutterhead of the dredge, *Goetz*, in a June 24 christening ceremony in Winona, Minn. Bill Goetz was chief of the Construction-Operations Division at St. Paul District, from 1970 until his retirement in 1990.

Technology on the *Goetz* is expected to improve dredging operations by 30 percent. Variable speed-drive motors, coupled with automatic controls and continuous measurement of key dredging parameters, will drastically reduce fuel consumption and wear on sand-handling parts, compared to the dredge *Thompson*.

The Corps will continue to operate the *Thompson* to tow the *Goetz* until the *Warren* and *Taggatz* come on line. In a couple of years, when the new fleet is ready, the 69-year-old *Thompson* will be retired due to high operating costs and difficulty in obtaining parts. It will be fully retired as an exhibit at the Maritime Heritage Society Museum in Winona, Minn.

Brother Craig Franz, president of St. Mary's University of Minnesota, Winona, toured the *Goetz* and *Thompson* for more than three hours during the open house. "The tour of the *Goetz* provided Winona area residents an opportunity to touch their future," he said.

"For a people whose economic, political and social lifeblood draws from the river, the *Goetz* – and its hard-working crew – provides welcomed aspirations for vital uninterrupted river transport."

For more information call the St. Paul District Public Affairs Office at (651) 290-5200.

Tobyhanna project sparks interest

By CHRISTOPHER AUGSBURGER
Baltimore District

A committee composed of concerned residents, property developers, local emergency management agencies and other state and local government representatives gathered in Gouldsboro, Pa., in April to discuss Baltimore District's progress in the investigation and long-term response to the presence of munitions and explosives of concern, or MEC, in Tobyhanna State Park and Gamelands 127.

The Corps and its partner, the Pennsylvania Department of Environmental Protection, or PADEP, are in the final stages of a remedial investigation and feasibility study, or RI/FS, which will help determine the appropriate MEC response.

The park and its adjacent gamelands comprise about 21,000 acres of the former Tobyhanna Artillery Range – an active military installation from 1912 until its transfer to the commonwealth of Pennsylvania in 1949.

Much of the property served as an artillery range and impact area during World War I and at the beginning of World War II. The state park and gamelands are classified as a Formerly Used Defense Site, where ordnance fired at the site included 37 mm, 75 mm and 155 mm conventional munitions.

After the park was turned over to Pennsylvania, munitions began to be uncovered. In May 1997, an individual using a metal detector discovered 53 unexploded 37 mm artillery rounds at the Tobyhanna State Park campground.

"I remember when all of that happened," said Mike Galada, a nearby resident who has been fishing in the park's lakes since 1971. "Everyone made a big deal of it, but no one got hurt," he said.

After the discovery in 1997, the Corps conducted a year-long time-critical removal action, or TCRA, in the developed public use areas of the park. The cleanup covered about 200 acres, including the family campground, lakeside beach, picnic area, boat launch ramp, a youth group camping area and ten miles of developed hiking trails.

Working closely with PADEP, the Pennsylvania Department of Transportation, local township emergency management agencies and other state and local agencies, the Corps implemented unique institutional controls and community education efforts during the TRCA, which the park continues to use today.

These efforts include signage on the property, public meetings, media availabilities, news releases, door-to-door visits, public notices and information brochures. The Corps also produced a safety video to distribute to government and state park officials to help educate park visitors.

The community involvement seems to have achieved its goal of public awareness and safety. "I've heard stuff on the radio and read stories in the paper," said Justin Allman, who has spent the last 15 years hiking the trails in Tobyhanna State Park. He said he feels no more in danger in the park than anywhere else. "I have just as good a chance of a tree falling on me," he said.

Nancy Gusy and her husband have been camping and fishing in the park for 40 years and feel just as safe now as they did when they first started visiting Tobyhanna State Park. "We've seen it in the paper, and there are signs all around. I don't think there's anything to worry about," she said.

Ordnance removal operations began in November 1997 and were completed a year later. The park reopened for public use in early December 1998 after 276 live ordnance items were located and safely destroyed during the TCRA.

The Corps teamed with PADEP in 2003 to begin an RI/FS to address ordnance items identified in the remaining 21,000 acres of the park and gamelands – remote acres not investigated during the initial TCRA.

Results of the RI/FS will determine the extent and cost of any future MEC removal projects required at the state park and gamelands.

Under a unique joint venture arrangement, PADEP is funding the $3 million RI/FS contract, and Baltimore District is providing technical and safety oversight of the RI/FS effort. Additionally, the Corps awarded an $800,000 contract to perform a TCRA along 12.5 miles of trails in State Gamelands 127.

Building on previous community involvement efforts, the Corps, its contractor and PADEP worked hand-in-hand to develop a Technical Review Committee, or TRC, to help guide the partnership in its decision-making process.

"The TRC maximizes the local knowledge and expertise of those who visit or use the parks daily, or have an interest in developing land surrounding the parks," said Nicki Fatherly, design team leader for the investigation.

According to Fatherly, the committee members review and comment on draft decision documents, volunteer information and highlight issues they feel should be further addressed.

"This candid input allows the Corps to make reasonable adjustments to decision documents that reflect the intricate and detailed interests of the community," said Fatherly.

The final remedial investigation report and the final feasibility study were released in June and July respectively.

For more information call the Baltimore District Public Affairs Office at (410) 962-7522.

Photo by Christopher Augsburger

Tobyhanna State Park and gamelands are classified as a Formerly Used Defense Site. Ordnance fired at the site includes 37 mm, 75 mm, and 155 mm conventional munitions.

West Thompson Lake 'Earth Day Cleanup 2005' a success

By MICHELLE DWYER
New England District

New England District employees and volunteers celebrated Earth Day the way that it should be celebrated – taking care of the environment by participating in cleanup and maintenance projects.

Thanks to the outstanding contribution of approximately 200 volunteers, West Thompson Lake's 13th Annual Earth Day Celebration was a huge success.

Accomplishments for the day included the construction of one mile of new trail; construction of an ADA ramp at the campground registration building; clearing an area for the placement of a new disc golf hole; and the replacement of the guardrail located at the Boat Ramp parking area.

In addition to individual volunteers, a number of private organizations that regularly hold events at West Thompson Lake participated in the cleanup event. The Yankee Flyers of Connecticut, which is a model airplane club, cut and split at least three cords of wood. Several different dog-training groups built a three-sided closure for the portable toilet located on the west side of the lake.

Six Boy Scout troops also lent a hand by stacking wood for the campground, cleaning the sites in the campground, and picking up trash along the roadways and trails throughout the property. The Scouts picked up about 30 cubic yards of trash including cans, bottles, scrap metal, plastics, and 49 tires.

U.S. Army photo

A troop of Boy Scouts stacks wood during the West Thompson Lake Earth Day event celebrated in April. Earth Day 2006 will be celebrated April 22, 2006.

When all the hard work was done for the day, volunteers and New England District Park Rangers enjoyed a pizza and hot dog lunch.

After lunch, the Earth Day celebration concluded with a children's program. The kids went into the woods and picked pine cones to make pine cone bird feeders.

After slathering the pine cones with peanut butter and rolling them in bird seed, the children hung them up around the picnic shelter. The program was so successful, some children made enough of the bird feeders to take home for their own neighborhood birds.

For more information, contact New England District Public Affairs at (978) 318-8777.

Engineering Knowledge Online connects environmental community of practice

By DANA FINNEY
Engineering Research and Development Center

The Corps' Environmental Community of Practice (eCoP) has harnessed the power of a robust Web portal to forge ahead with the spirit and intent of USACE 2012. The Engineering Knowledge Online Portal (EKO™) has become a boon to the eCoP in helping professionals communicate, collaborate, and share information.

EKO™ is a Corps of Engineers knowledge management tool originally developed for the Installation Support (IS) CoP that now serves the entire Army engineering community.

A "portal" differs from a stationary Web site in that it allows users to post their own information, provides searchable links to millions of Web sites, and enables an almost limitless number of applications to be launched.

"In a previous job, when I needed to have something posted on the Web, I had to go to the Webmaster, and it would sometimes be months before the information got out," says John Grigg, program manager for the Access Control Point Equipment Program (ACPEP) at Huntsville Engineering and Support Center. "I almost resorted to bribery."

In addition to requiring a Webmaster's skills for posting, these sites tend to have the content managed according to institutional business paradigms, where knowledge belongs to an organization and not a business area.

"When installation managers were looking for information, they first had to understand the Corps' organizational hierarchy. For example, to find information about protective design, they had to know that an Omaha District exists," says Chuck Schroeder, project manager at the Engineer Research and Development Center (ERDC).

Grigg and Schroeder led a multi-agency effort to create the EKO™ Portal as a means to facilitate information sharing within the Army engineering community. The need for a portal capability first emerged when the Center for Public Works (CPW) closed. Installation support experts were to be moved to Regional Business Centers and other field agencies. Kristine Allaman, who now leads the IS CoP, promoted this concept after ERDC's Construction Engineering Research Laboratory (CERL) briefed her on how to use portals for knowledge management.

See EKO on Page 16.

Ecosystem flows defined for Bill Williams River

By JOHN HICKEY
Hydrologic Engineering Center (on assignment with The Nature Conservancy)
and
ANDY WARNER
The Nature Conservancy

The Bill Williams River was one of nine rivers enrolled at the inception of the Sustainable Rivers Project (SRP). The SRP, which started in 2002, is an ongoing nationwide partnership between the U.S. Army Corps of Engineers and The Nature Conservancy to improve the health and life of rivers by changing the operations of Corps dams, while maintaining or enhancing project benefits.

The Bill Williams is certainly unique to the SRP, and perhaps to the United States. A tributary of the Colorado River, the Bill Williams drains a remote area of the Sonoran Desert and adjoining chaparral and forested habitats in western Arizona. Aligned east-west, its watershed is a good precipitation trap for any Pacific storms bold enough to venture into west central Arizona.

Statistically, the Bill Williams is one of the most variable rivers in the United States. Historical peak flows approached or exceeded 100,000 cfs six times between 1916 and 1939 and summer flows routinely fell to near zero levels. Flows in the lower Bill Williams are now regulated by Alamo Dam, a Corps Reservoir Project built in 1968 and operated for water supply, recreation, fish and wildlife, and flood control.

The Bill Williams River corridor contains the last remaining native woodland habitat of any size along the lower Colorado River drainage. Given the historic losses of this habitat – primarily cottonwood-willow and mesquite stands – and the limited ability to restore it along other portions of the Colorado River, the Bill Williams River corridor is disproportionately important for both existing habitat and habitat restoration potential.

"The riparian forest of the Bill Williams is a critical environmental resource for sustaining wildlife in the Southwest. More than 340 bird species have been observed within the Bill Williams River National Wildlife Refuge and for many migratory species the Bill Will is the only hospitable area for many miles," said Dr. John Hall, Sonoran Desert Program Manager for The Nature Conservancy and member of the Bill Williams Steering Committee.

In March 2005, an ecosystem flow workshop was conducted with the purpose of defining a set of flow requirements for sustaining the long-term health of the Bill Williams River corridor. The workshop was sponsored by the Bill Williams River Corridor Steering Committee (BWRCSC), which is a group of delegates from nine organizations that works to provide a collaborative, science-based framework to inform decision-making for water related efforts on the river system.

"A momentous occasion…over 50 scientists, engineers, and natural resource managers - representing more than 20 institutions - working together to reach consensus on a set of flow requirements in only two and half days," said Andrew Hautzinger, U.S. Fish and Wildlife Service and chair of the Steering Committee.

The Bill Williams workshop began with introductory remarks that outlined the purpose and structure of the workshop, expected products, and how the products would be used to guide management decisions.

The remarks were followed by presentations highlighting important aspects of the Bill Williams from different scientific perspectives, including hydrology, geomorphology, fishes, aquatic macroinvertebrates, riparian vegetation, and terrestrial fauna.

Following the presentations, workshop participants were split into three groups tasked with drafting flow requirements – comprised of baseflows and flood flows.

Each specified baseflow and flood flow was defined in terms of magnitude, timing, frequency, duration, and rates of rise and fall. Ecological benefits associated with each "flow component" were also stated, along with key uncertainties regarding whether each specified flow component would achieve its desired ecological benefits.

The three groups were Aquatics, with a focus on fishes and aquatic macroinvertebrates; Riparian System - Birds; and Riparian System - Terrestrial Fauna (other than birds).

After recommendations were developed by the three groups, each was presented in a plenary session. Participants were then tasked with resolving differences between the three biotic-based groups. The process involved tweaking the timing and magnitude of flows recommended in the different groups without sacrificing any ecological purposes of the original flows. The process produced a single unified set of flow requirements for the Bill Williams River.

"These ecological flow requirements will enable modelers and water managers to begin weighing the tradeoffs that would occur if the flows were implemented…and knowing the strategies and uncertainties associated with the flows helps to illustrate relationships between water management and ecology and to point out opportunities for us to learn more about the ecological effects of reservoirs. The ecological flow requirements produced in the workshop are invaluable to planning efforts in the water-

See Bill Williams on Page 15

Photo by Andrew Hautzinger, USFWS

The Bill Williams River and floodplain are shown during a time of high release from Alamo Dam. High flows in the Bill Williams are critical for renewing riparian forest and maintaining channel habitat.

"Wally the Woodchuck" Wins Telly Award

By CHARLES R. MINSKER
Huntington District

A hiker making his way through the woods along the northeast part of West Virginia made an unusual discovery recently. He found a military shell. And even though it dated back to World War II, that piece of ordnance had the potential to be just as dangerous as the day it was built.

More than 60 years ago, the Dolly Sods area – also known as the former West Virginia Maneuver Area (WVMA) - was used for military maneuvers, including artillery and mortar practice.

Today, those shells still present a danger to visitors. For that reason, the project management of the WVMA site was given to the U.S. Army Corps of Engineers' Huntington District as a Defense Environmental Restoration Program Formerly Used Defense Sites (DERP-FUDS) project.

As part of that project, the importance of safety is being emphasized – and it's a lesson that's being taught by an unusual woodland creature – Wally the Woodchuck.

Wally is the star of an animated flash video that's available on the Huntington District Web site, and he's made quite a splash in his first outing – he's sharing some vital information, and he won an international award at the same time!

The video was created by the U.S. Army Corps of Engineers and S&C Advertising and Public Relations in San Antonio, Texas. It was honored in the Safety category in the 26th Annual Telly Awards Competition. The Telly Awards showcase the best work of advertising agencies, production companies and television stations.

"We wanted to raise public awareness of potential hazards associated with unexploded ordnance by developing and implementing a new public awareness and education program. The animated film was part of the innovative program we developed," said Eric Guy, a Huntington District hydrogeologist.

The problem was how to warn visitors to the Dolly Sods area about the danger. The solution was to inform the public through a series of efforts, including posters, brochures, signs posted throughout the area, and an educational video.

More than 76,000 people visit the area every year to enjoy the natural beauty - but many of them aren't aware of the potential hazard.

"The program was started because it's not possible to reduce the ordnance-related risk to zero," Guy added. "Even with modern technology, it's not possible to detect all the unexploded ordnance out there - excessive cost, the rough terrain, and related environmental damage are other factors which prevent total risk reduction. In '46 and '53 the Army did clearance operations, but some areas couldn't be cleared because of the landscape."

The answer was to educate the public, and a team was assembled to tackle the problem. That group, made up of project technical lead Erich Guy, project manager Rick Meadows, and technical team members Frank Albert, Nick McHenry and Wally Dean, decided the best way to get the message across was by creating a special mascot.

Wally the Woodchuck was created to tackle the job – but the character was also named in honor of a member of the Corps family. Guy said, "Wally the Woodchuck is the namesake of Wally Dean. When he was a teenager, he was injured by a piece of ordnance at Dolly Sods. He's a team member, and we needed a mascot. Wally went along with the idea – at least he never objected."

Guy was quick to point out that the character's amusing voice was created by a professional actor, and definitely isn't Wally's voice.

Wally the Woodchuck's advice is summed up in three messages: Spot (watch out for dangerous objects); Walk Away (keep away from the object); and Call 1-888-283-0303 (to alert officials about the location).

The danger is real, but as long as the visitor is cautious, the chance of being injured is slight. There are usually a couple of unexploded ordnance finds every summer, but those who have found items since the public awareness program has been implemented have known what to do and have remained perfectly safe.

The public trails and campgrounds have been cleared, but the remote and infrequently visited areas of the wilderness can conceal shells. Guy said, "When people find objects, it's when they go into the wild areas – we instruct them that they should stay on established trails and campsites which we cleared for ordnance during 1997 and 1998."

When someone calls, both the Forest Service and the Corps are notified. The Forest Service goes to the site and verifies the find. Then the U.S. Army Explosive Ordnance Disposal unit is notified, and they handle the removal of the object. If they find the object to be potentially dangerous, they'll usually detonate it on the spot, rather than risk trying to move it.

The shell discovered by a hiker last month had already been detonated, so it wasn't dangerous. As long as hikers follow Wally's advice, hiking and other outdoor recreational activities at Dolly Sods will continue to be as safe as any other walk through the forest.

The WVMA project's video and other educational materials from the public awareness program are online at http://www.lrh.usace. army.mil/projects/current/derp-fuds/wvma.

Bill Williams

Continued from Page 14

shed," said Joe Evelyn, Chief of the Hydrology and Hydraulics Branch in Los Angeles District and a member of the Steering Committee.

Identification of ecosystem flow requirements is a milestone for Sustainable Rivers Projects. Similar workshops have been successfully conducted for the Savannah River in Georgia and South Carolina and Big Cypress Creek-Caddo Lake system in Texas and Louisiana. Water managers in Savannah District have already been able to implement portions of the flow recommendations that were within the bounds of current operations.

For details about Sustainable Rivers work on the Bill Williams, please contact John Hall by email at john_hall@tnc.org, or Joe Evelyn at joseph.b.evelyn@usace.army.mil. For details on ecosystem flow workshops or the Sustainable Rivers Project, contact John Hickey at john.t.hickey@usace.army.mil or Andy Warner at awarner@tnc.org.

For information about the national Corps-Conservancy partnership or the SRP, contact Lisa Morales, Corps National Liaison to the Conservancy at lisa.t.morales@usace.army.mil or Ted Illston at tillston@tnc.org.

Editor's note: This is the second in a series of articles about the Sustainable Rivers Partnership between the U.S. Army Corps of Engineers and The Nature Conservancy.

Continued from Page 13

According to Grigg, who was with CPW at the time, "We were going to be scattered all over the place, but needed to stay connected to a central team because of all the institutional knowledge in our group. Most problems in our business have already been solved, but how do people get the solutions?"

Among the EKO™ Portal's user-friendly features:

- Hosts both public and secure pages, using authentication through Army Knowledge Online (AKO) accounts which are required for all Department of the Army employees
- Easily customizable page layout and use of numerous programs
- No Web development expertise needed to manage pages or content
- Web-based collaboration for workgroups
- Users can receive email alerts when something new of interest has been posted.

The EKO™ Portal today is growing exponentially, partly due to the changing culture within the Corps. **"We want to encourage everyone in the environmental community to register on the portal, which is open and available for sharing information** — with only some minor oversight to ensure we don't become a data junkyard," says Ken Gregg, team leader for the environmental CoP at Corps headquarters. "Rather than use EKO as a method of tasking people to do things, we want it to motivate them and make them feel empowered to lend their expertise to help improve the way the Army and the Corps do business.

"We looked at several options for linking the eCoP. What appealed to me about EKO has a lot to do with name recognition and its corporate feel. The site is user-friendly with an open architecture, so I could log in and use it without anyone showing me how to use it. The security aspect was also important to us," he said.

"It allows for multiple PDTs (project delivery teams) to each establish a 'virtual team room' where they can conduct secure threaded discussions limited to their team members. This is similar to the discussion area in Groove but is available via password from any computer, whether the team members have Groove capability or not. In our reimbursable programs, that will be very beneficial for the customer to participate in those discussions."

To date more than 600 people have registered in the EKO™ Portal as members of the eCoP, which is as simple as logging in to Army Knowledge Online. Larry Barb, environmental engineer at Headquarters, says that persons interested in joining the eCoP can indicate their area of interest in one or more of the eight sub-CoPs which allows the team leader to know who is in the community.

"Our Military Munitions Response Program sub-CoP is way out in front of the others for how they use EKO," Barb says.

"Every day the team leader posts new information – presentations from conferences, technical updates, training courses, memos from the Secretariat, and everything else related to munitions response."

"In both society as a whole and government in particular, we're losing our expertise, with many people becoming program managers instead of specializing in more focused technical skills," says Gregg. "That's why EKO is so powerful, because we still have pockets of expertise out there, and this makes it easy to find."

The EKO™ Portal currently hosts 26 virtual teams, as well as 23 of the 26 USACE CoPs. Site visits average 45,000 per month.

For more information about the EKO™ Portal, please contact Chuck Schroeder at the U.S. Army Corps of Engineers Research Laboratory at 217-373-6726, or by email at Charles.G.Schroeder@erdc.usace.army.mil or John Grigg at HNC, 256-895-1697, John.W.Grigg@usace.army.mil.

DEPARTMENT OF THE ARMY
U.S. ENGINEERING AND SUPPORT CENTER, HUNTSVILLE
P.O. BOX 1600
HUNTSVILLE, AL 35807-4301

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